



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Wongsenakhum et al.

Attorney Docket No.:
NOVLP096/NVLS-2902

Application No.: 10/815,560

Examiner: Estrada, M.

Filed: March 31, 2004

Group: 2823

Title: METHOD OF FORMING LOW-
RESISTIVITY TUNGSTEN
INTERCONNECTS

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the U.S. Postal Service with sufficient postage as first-class mail on October 12, 2005 in an envelope addressed to the Commissioner for Patents, P.O. Box 1450 Alexandria, VA 22313-1450.

Signed: _____

Tara Hayden

**INFORMATION DISCLOSURE STATEMENT
BEFORE FINAL ACTION OR NOTICE OF ALLOWANCE
(37 CFR §§ 1.56 AND 1.97(c))**

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

The references listed in the attached PTO Form 1449, a copy of which is attached, may be material to examination of the above-identified patent application. Applicants submit this reference in compliance with their duty of disclosure pursuant to 37 CFR §§1.56 and 1.97. The Examiner is requested to make this citation of official record in this application.

This Information Disclosure Statement is not to be construed as a representation that a search has been made, that additional information material to the examination of this application does not exist, or that this reference indeed constitutes prior art.

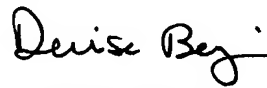
This Information Disclosure Statement is being filed after the mailing date of the first Office Action on the merits, or after three months of the filing date of this application, whichever event occurred last, but it is believed before the mailing date of either: (i) a final action under §1.113 or (ii) a notice of allowance under §1.311, whichever occurs first.

Accompanying this Information Disclosure Statement is

- ☐ a statement as specified in 37 CFR 1.97(e); or
- ☒ the fee set forth in 37 CFR 1.17(p).

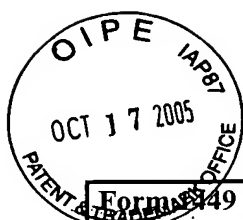
If fees are due, enclosed is our Check No. for \$180.00 in payment of the Information Disclosure Statement Fee. If it is determined that any additional fees are due, the Commissioner is hereby authorized to charge such fees to Deposit Account 500388 (Order No. NOVLP096).

Respectfully submitted,
BEYER WEAVER & THOMAS, LLP



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Form 149 (Modified) Information Disclosure Statement By Applicant (Use Several Sheets if Necessary)	Atty Docket No. NOVLP096/NVLS-2902	Application No.: 10/815,560
	Applicant: Wongsenakhum et al. Filing Date March 31, 2004	Group 2823

U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
	A1	6,635,965	10.21.03	Lee et al.			
	A2	6,607,976	08/19/03	Chen et al.			
	A3	6,740,585	05/25/04	Yoon et al.			
	A4	6,861,356	03/01/05	Matsuse et al.			
	A5	6,107,200 A	08.2000	Takagi et al.			
	A6	6,844,258	01.18.05	Fair et al.			
	A7	6,174,812	01/16/01	Hsiung, et al.			
	A8	6,566,250	05/20/03	Tu,et al.			
	A9	6,566,262	05/20/03	Rissman, et al.			
	A10	6,706,625	03/16/04	Sudijono, et al.			
	A11	2004/0044127	03.04.04	Okubo et al.			
	A12	2004/0206267	10.21.04	Sambasivan et al.			

Foreign Patent or Published Foreign Patent Application

Examiner Initial	No.	Document No.	Publication Date	Country or Patent Office	Class	Sub-class	Translation	
							Yes	No
	B1	WO01/27147	04/19/01	WIPO			X	

Other Documents

Examiner Initial	No.	Author, Title, Date, Place (e.g. Journal) of Publication
	C1	U.S. Office Action mailed July 17, 2002, from U.S. Application No. 09/975,074 [Atty Dkt. NOVLP033/NVLS-000498].
	C2	U.S. Office Action mailed February 8, 2005, from U.S. Application No. 10/649,351 [Atty Dkt. NOVLP033X1/NVLS-000498X1].
	C3	U.S. Office Action mailed July 14, 2005, from U.S. Application No. 10/649,351 [Atty Dkt. NOVLP033X1/NVLS-000498X1].
	C4	Presentation by Inventor James Fair: "Chemical Vapor Deposition of Refractory Metal Silicides," 27 Pages, 1983
	C5	Saito et al., "A Novel Copper Interconnection Technology Using Self Aligned Metal Capping Method," IEEE, 3 Pages, 2001
	C6	U.S. Office Action mailed June 22, 2004, from U.S. Application No. 10/435,010 [Atty Dkt. NOVLP058/NVLS-000730].
	C7	U.S. Office Action mailed March 23, 2005, from U.S. Application No. 10/690,492 [Atty Dkt. NOVLP063/NVLS-000615].
Examiner		Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Form 1449 (Modified) Information Disclosure Statement By Applicant (Use Several Sheets if Necessary)	Atty Docket No.	Application No.:
	NOVLP096/NVLS-2902	10/815,560
	Applicant:	
	Wongsenakhum et al.	
	Filing Date	Group
	March 31, 2004	2823

Other Documents

Examiner Initial	No.	Author, Title, Date, Place (e.g. Journal) of Publication
	C8	Levy e al., "Deposition of Tungsten Nitride", Novellus Systems, Inc., filed October 20, 2003, Application No. 10/690,492, pages 1-42. [Atty Dkt. NOVLP063/NVLS-000615]
	C9	Lee et al., "Method for Reducing Tungsten Film Roughness and Improving Step Coverage", Novellus Systems, Inc., filed August 26, 2003, Application No. 10/649,351, pages 1-40. [NOVLP033X1/NVLS-000498X1]
	C10	Fair et al., "Selective Refractory Metal and Nitride Capping", Novellus Systems, Inc., filed November 8, 2004, Appln No. 10/984,126, pages 1-22. [NOVLP058D1/NVLS-000732D1]
Examiner		Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.